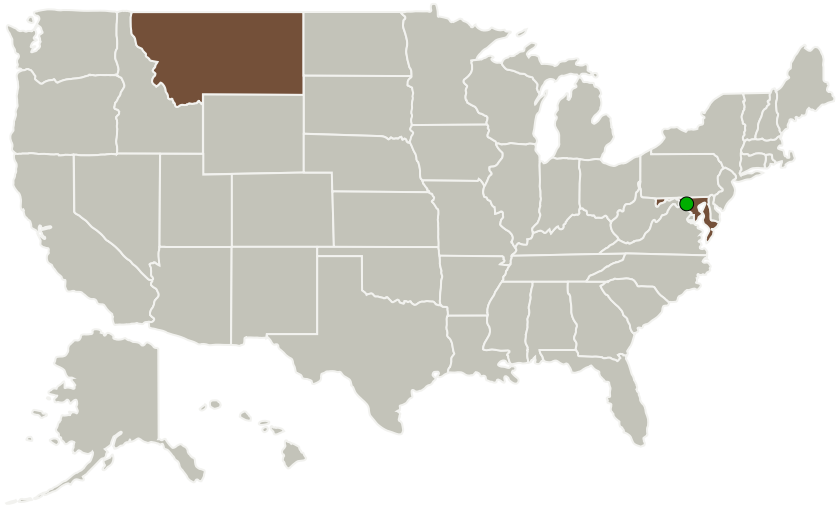
A Waveguide Based, High Power Pockels Cell Modulator for Sub-Nanosecond Pulse Slicing, Phase I

Completed Technology Project (2011 - 2012)

Project Introduction

The Goal of this STTR is to develop a high speed, high power, waveguide based modulator (phase and amplitude) and investigate its use as a pulse slicer. The key innovation in this effort is the use of potassium titanyl phosphate (KTP) waveguides making the high power, polarization based waveguide amplitude modulator possible. Furthermore because it is fabricated in KTP, the waveguide component will withstand high optical power and have a significantly higher rf modulation figure-of-merit (FOM) relative to lithium niobate.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ADVR, Inc.	Lead Organization	Industry	Bozeman, Montana
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland
Montana State University - Bozeman	Supporting Organization	Academia	Bozeman, Montana

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Primary U.S. Work Locations	
Maryland	Montana

Project Transitions

February 2011: Project Start

February 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137934)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

ADVR, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

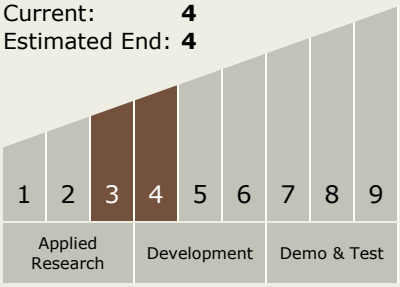
Carlos Torrez

Principal Investigator:

Justin T Hawthorne

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.1 Optical Communications
    - TX05.1.7 Innovative Signal Modulations

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System